Exercise 1 *Water freezes at* 0° *Celsius and* 32° *Fahrenheit and it boils at* $100^\circ C$ *and* $212^\circ F$.

Write your answers as improper fractions if necessary.

(a) *A linear function* F *that expresses temperature in the Fahrenheit scale in terms of degrees Celsius (which we represent by the variable* x*) is* $F(x) =$ $\boxed{(9/5)x + 32}$.

(b) *Using the above function,* $20^\circ C$ *is* $\boxed{68}^\circ$ *Fahrenheit.*

(c) *A linear function* C *that expresses temperature in the Celsius scale in terms of degrees Fahrenheit (which we represent by the variable* x*) is* $C(x) = \boxed{(5/9)x - 160/9}$.

(d) *Using the above function,* $110^\circ F$ *is* $\boxed{130/3}^\circ$ *Celsius.*

(e) *The temperature* x *at which* $F(x) = C(x)$ *is* $\boxed{-40}^\circ$.